

## REMARKS

### *Rejection Pursuant to 35 U.S.C. § 103*

The Examiner rejected claims 1-8, 10-16, and 18-24 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,120,448 to Bradley (hereinafter *Bradley*). See *Office Action*, 2. The Examiner states that “it would have been *prima facie* obvious to have modified the teachings of Bradley to include raw data averager with the receiver unit to obtain the invention in the instant (sic) **Claims 1, 15, 16, and 18.**” *Office Action*, 2. The Examiner supports this contention by 1) asserting that “[a]pplicant states in the Specification that using an average function to analyze reflected waveforms is known to those of ordinary skill in the art,” and 2) asserting that *Bradley* “explains that many modifications and/or changes can be made to the embodiments while staying within the scope of his invention.” *Office Action*, 2. The Applicants respectfully traverses this rejection on both grounds 1) and 2).

With respect to 1) above, the Examiner points to page 4, paragraph [0001] of Applicants’ Specification (hereinafter *Specification*). There is no such statement in that section, or in any other portion of the *Specification* for that matter, that supports the Examiner’s contention. The Applicant states on page 4, paragraph [0009] that “[v]arious forms of averaging techniques have been employed to reduce the noise, but **averaging alone is ineffective** in locating images of interest” *Specification*, [0009] (emphasis added). The Examiner has therefore misinterpreted the *Specification*. As such, the Applicants have amended claim 1 to further distinguish the receiver and raw data averager from the averaging techniques mentioned *supra*.

With respect to 2) above, claim 1, as amended recites:

A system for ultrasonic imaging, comprising:

- a signal generator unit for generating at least two out-of-phase pulses;

- a signal transmitter unit coupled to the signal generator unit for transmitting the at least two out-of-phase pulses into media of interest;

- a receiver and raw data averager unit for receiving the at least two out-of-phase pulses modified by the media of interest, the receiver and raw data averager unit providing a point-by-point arithmetic average of the received at least two out-of-phase pulses modified by the media of interest; and

- a data processing unit coupled to the receiver and raw data averager unit, the data processing unit constructing an area of acoustic image based on the point-by-point arithmetic average provided by the receiver and raw data averager unit.

*Bradley* discloses an ultrasonic imaging system and method that combines component images to form a composite image,  $Z_N$ .  $Z_N$  is formed by taking a difference between the received signals corresponding to the component images. The absolute value of resultant  $Z_N$  is determined, low-pass filtered, and then “sent through the usual processing path before display.” *Bradley*, col. 1, l. 46-47. The Examiner contends that *Bradley* “explains that modifications and/or changes [could] be made to the embodiments while staying within the scope of his invention.” *Office Action*, 2. With respect to 2) above, *Bradley* neither teaches nor suggests that a “receiver and raw data averager providing a point-by-point arithmetic average of the received at least two out-of-phase pulses modified by the media of interest” would constitute any of the modifications or changes in light of *Bradley*’s disclosure.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The Examiner has failed to demonstrate that a “receiver and raw data averager providing a point-by-point arithmetic average of the received at least two out-of-phase pulses modified by the media of interest” as recited in independent claim 1 is taught or suggested by *Bradley*. As such, the burden of providing a *prima facie* case of obviousness has not been met and the rejection of independent claim 1 under 35 U.S.C. §103(a) is overcome. Since claims 2-24 are each dependent on independent claim 1, either directly or via an intervening claim, the rejection under 35 U.S.C. § 103(a) are overcome and these claims are allowable. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

## CONCLUSION

The Applicant contends that the Examiner's rejection under 35 U.S.C. § 103(a) is overcome. *Bradley* does not teach or suggest a receiver and raw data averager providing a point-by-point arithmetic average of the received at least two out-of-phase pulses modified by the media of interest as recited in the Applicants' claim 1. The rejection of dependent claims 2-8 and 10-24 are overcome for at least the same reasons.

The Applicant respectfully contends that the Examiner's rejections are overcome and that the application is in condition for allowance. The Examiner is invited to contact Applicants' undersigned representative with any questions concerning this matter.

Respectfully submitted,  
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October 13, 2008

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